

REMARKS

Specification

The Examiner has objected to the specification as being indefinite due to certain language appearing in the Abstract. The Abstract has been amended to remove the term "means" appearing in line 4 thereof. It is believed that this removes the objection thereto.

Claim Rejections – 35 USC § 102

Claims 1-10 are currently pending in the application. Applicant has amended Claim 1, canceled Claims 2-3 and 6, and has amended Claims 4, 5, 7 and 9. In addition, Applicant has presented new Claims 11-14. The remarks set forth below will be directed to the claims as amended or newly presented.

The Examiner has rejected Claims 1-9 as being anticipated by Walton, US Patent No. 5,291,789 ('789). With regard to Claim 1, the Examiner states, "Walton discloses a load indicator comprising a check device for limiting an axial force operating between force-applying elements 11, 13 of a screw joint, the check device including signal value pick-up means 133, 136 from a measuring element whose electrical resistance is variable as a function of the operative axial force (see col. 3, lines 13-17, col. 4, lines 55-64, col. 5, lines 1-7 and col. 6, lines 3-35 and 46-51)."

Claim 1 has been amended to require "a measuring element in the form of a washer contacting the first force-applying element or the second force-applying element, wherein the electrical resistance of the measuring element is variable as a function of the axial force applied by the first force-applying element or the second force-applying element to the washer." With regard to column 3, lines 13-17 cited by the Examiner, it is admitted "the head and nut may act on the members 10 and 11, their respective washers." However, it is clear that the washer is not the measuring element. As stated at column 4, line 55-64 cited by the Examiner, it is clear that the measuring means is the fastener, and that the operative measurement is the contact element 24 contacting the surface 20 and completing the circuit to illuminate the bulb 27.

It is pointed out that the main benefit of the present invention is that all the measuring is done by a washer and the component for fixing, and "normal" screws can

be used. In contrast, Walton ('789) requires a relatively expensive special screw which has a complicated mechanical interior. Further, the operating principle of Walton ('789) depends on the mechanical deformation of certain zones of the screw, which is not as stable as a "normal" screw. It is known that the strength of screws can vary from screw to screw because of impurities in the metal and other factors. This is exacerbated by the complicated mechanical interior of Walton ('789). The actual force applied to the Walton device to produce the amount of deformation sufficient to illuminate the bulb 27 may vary from application to application. The present invention eliminates this problem in the art by removing the measuring device from the screw.

Since Walton does not show the measuring element in the form of a washer, Claim 1 is not anticipated by Walton. With regard to the Examiner's comments regarding Claims 2 and 3, these claims have been canceled rendering these grounds of rejection moot.

In regard to Claim 4, this claim depends from a now allowable Claim 1, and thus is not anticipated by Walton ('789). In addition, although not currently in the claim, it is noted that the means for signal value pick-up are external to the measuring element and Applicant offers to so amend Claim 4 if necessary.

With regard to Claim 5, this claim depends from a now allowable Claim 1, and the same comments apply as above.

Claim 6 has been canceled, rendering the anticipation rejection over Walton ('789) moot.

Claim 7 depends from a now allowable Claim 1, and is therefore allowable.

With regard to Claim 9, the dependency of Claim 9 has been changed from Claim 2 which is now canceled to Claim 1, which is now in allowable condition and therefore is also allowable.

Claim 10 will be commented on below.

With regard to newly presented Claim 11, this is similar to old Claim 1 with one significant difference. Claim 11 now claims "means for signal value pick-up from an annular measuring element separate and distinct from any force applying elements, but acted on by at least one of the force applying elements, and whose electrical resistance is continuously variable as a function of the operative axial force".

Support for this claim language is inherent in the specification. The coating on the top or the bottom of the annular measuring element is a material whose electrical resistance is variable as a function of the operative axial force applied to the screw joint (see Specification, page 4, lines 25-end and page 5, lines 23-end). Further, it is very clear from the specification and drawings the annular member must be separate from the force applying elements, but be acted on by one of them.

It is clear that Walton ('789) does not have a separate annular measuring element, as the measuring element is the fastener itself. Thus, claim 11 is allowable.

Dependent Claims 12-14 are dependent claims depending on the allowable Claim 11, and for this reason are allowable.

Claim Rejections – 35 USC § 103

The Examiner has rejected Claim 10 as being obvious in view of the combination of Walton and Payne. The Examiner has stated, "Regarding Claim 10, Walton discloses all of the limitations of these claims except for an acoustic or optical indicating device for adjusted axial force values. However, Payne discloses a strain indicator 36 comprising an optical indicator which upon projection causes a brightly colored external surface 48 to be exposed which indicates that a decrease in load on the fastener has taken place (see column 4, lines 20-26). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Walton ('789) according to the teachings of Payne for the purpose of utilizing an optical indicator to output a visual indication that a fastener is in a loosened condition to apply an appropriate torque to the fastener ..."

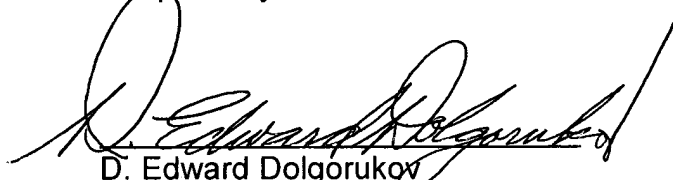
While Payne does give an optical indication of the loosening of the fastener, it is to be remembered that Claim 10 is now dependent on allowable Claim 1. The combination of Payne and Walton ('789) does not have a washer, or a separate and distinct annular measuring element, and therefore, Payne and Walton do not render claim 10, or any of the claims, obvious.

Conclusion

Applicant has considered the prior to Cenyl, Kibblewhite ('176) and Kibblewhite ('248) but does not consider it any more pertinent to the amended claims than the other art cited by the Examiner. None of the references, taken singly or in combination, discloses a check device in the form of a washer or a separate annular measuring element which can simply be inserted between, for example, a bolt or a nut holding a screwed joint together. Therefore, the claims as amended are clearly allowable.

In view of the amendments and the remarks explanatory thereof, a favorable. Reconsideration of the present application, and the passing of this case to issue is courteously solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "D. Edward Dolgorukov", is written over a horizontal line.

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